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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Simon Sabato

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EXAMINER

VIANA DI PRISCO, GERMAN

ART UNIT

PAPER NUMBER

2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/734,081	Applicant(s) SABATO ET AL.	
	Examiner German Viana Di Prisco	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to applicant's amendment filed on June 26, 2007.

Claims 1-14 are now pending in the present application. This office action is made final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

3. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States..

4. Claims 1,5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sriram (United States Patent No.: 5,463,620).

Consider claim 1 Sriram clearly shows and discloses allocating a plurality of consecutive packets (a queue, a sequence of packets) to a queue set (queue sets Type 1A, Type 1B, Type 2 and Type 3 in figure 5), the plurality of consecutive packets being associated (classified) with the queue (figure 5 and column 4 line 64-column5 line 11); and performing a queuing operation on the queue set, the queuing operation treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets (a number of packets are withdrawn from the queue at a time)in the queue set (figure 5 and column 5 lines 35-58).

Consider claim 5 and as applied to claim 1 above, Sriram teaches shaping traffic flow of the queue set at a rate for transmission of data from the queue (figure 5 and column 5 lines 51-60).

Consider claim 6 and as applied to claim 1 above, Sriram discloses a queuing operation comprising at least one selected from the group consisting of: enqueue operation and dequeue operation (column 2 lines 5-9).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Weng et al (United States Patent Application Publication No.: US 2001/0007565 A1).

Consider claim 2 and as applied to claim 1, Sriram teaches the claimed invention but fails to specifically teach allocating the plurality of consecutive packets to the queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue.

In the same field of endeavor Weng et al t teach allocating the plurality of consecutive packets to the queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue (paragraph [0035]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to allocate the plurality of consecutive packets to the

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queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue as taught by Weng et al in the system of Sriram in order to efficiently handle data packets.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Ying et al (United States Patent No.: US 6,810,012 B1) as applied to claim 1 above, and further in view of Giroux et al (United States Patent Application Publication No.: US 2002/0044529 A1).

Consider claim 3 and as applied to claim 1 above Sriram discloses the claimed invention but may not explicitly disclose determining a queue service interval for performing queuing operations on queue sets based upon a desired data rate and a target queue set size; wherein performing the queuing operation on the queue set related to the queue further comprises: performing a first queuing operation on a first queue set related to the queue, delaying a period of time equivalent to the queue service interval, and performing a subsequent queuing operation on a second queue set related to the queue.

In the same field of endeavor Yin et al clearly show and disclose determining a queue service interval for performing queuing operations on queue sets based upon a desired data rate (column 3 lines 13-15); wherein performing the queuing operation on the queue set related to the queue further comprises: performing a first queuing operation on a first queue set related to the queue, delaying a period of time equivalent

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to the queue service interval, and performing a subsequent queuing operation on a second queue set related to the queue(column 3 lines 44-46).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Yin et al in the system of Sriram in order to ideally service each queue set.

Nonetheless the combination of Sriram and Yin et al fail to teach that the determination of the queue service interval is based upon a target queue set size.

In the same field of endeavor Giroux et al disclose determining the queue service interval based upon a target queue size (paragraph [0033]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to determining the queue service interval based upon a target queue size as disclose by Giroux et al in the system of Sriram as modified by Yin et al in order to ensure bandwidth allocation.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Ying et al (United States Patent No.: US 6,810,012 B1) as applied to claim 3 above, and further in view of Giroux et al (United States Patent Application Publication No.: US 2002/0044529 A1), Aweya et al (United States Patent No.: US 7,047,312 B1) and Reeser et al (United States Patent No.: US 6,789,050 B1).

Consider claim 4 and as applied to claim 3 above, the combination of Sriram, Yin et al and Giroux et al disclose adjusting the queue service interval based upon a

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difference between the change in queue set size and the target queue set size, (Giroux et al paragraph [0033]-[0035]) but it does not specifically disclose determining an average queue set size for the queue set over a period of time; and adjusting the queue service interval based upon a difference between the average queue set size and the target queue set size.

In the same field of endeavor Aweya et al disclose detecting congestion by taking the difference (comparing) the average queue size with the target queue size (pre-determined threshold).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to take the difference between the average queue set size and the target queue set size as disclosed by Aweya et al in the system of Sriram as modified by Yin et al and further modified by Giroux et al in order to determine congestion.

In the same field of endeavor Reeser et al disclose adjusting the queue service interval (service time) based upon congestion (column 3 lines 1-9).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to adjust the queue service interval based on congestion as disclosed by Reeser et al in the system of Sriram as modified by Yin et al and further modified by Giroux et al in and Aweya et al in order to account for network performance.

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11. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Parthasarathy (United States Patent No.: US 6,826,182 B1).

Consider claim 7 and as applied to claim 1 above, Sriram discloses the claimed invention but does not specifically disclose determining that each queue set of a plurality of consecutive queue sets is the same; using one representative queue set to represent the plurality of consecutive queue sets, a replication count of the queue set being equivalent to the number of queue sets in the plurality of consecutive queue sets; and performing a queuing operation on the representative queue set, such that the queuing operation is performed on each of the plurality of consecutive queue sets.

In the same field of endeavor Parthasarathy discloses determining that each queue of a plurality of consecutive queues is the same (identical message queues) (column 5 line 6-12); using one representative queue to represent the plurality of consecutive queues (in figure 3b composite queue 35 in figure 3b), a replication count of the queue being equivalent to the number of queues in the plurality of consecutive queues (multiple read cursor RC1-n) (figure 3b and column 5 lines 14-16); and performing a queuing operation on the representative queue, such that the queuing operation is performed on each of the plurality of consecutive queues (column 5 lines 45-49).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Parthasarathy for replicating

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queues in the queue sets of Sriram in order to reduce overhead and to make efficient use of available bandwidth between network points

12. Claims 8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Yin ((United States Patent No.: 5,926,458).

Regarding claim 8 Sriram teaches a queue set generator 25 configured for allocating a plurality of consecutive packets to a queue set the plurality of consecutive packets being associated with a queue (figure 3 and column 3 lines 35-42) and a scheduler 28 configured for performing a queuing operation on the queue set (queue sets Type 1A, Type 1B, Type 2 and Type 3 in figure 5), the queuing operation treating the queue as a single entity such that the queuing operation is performed on each of the plurality of consecutive packets (a number of packets are withdrawn from the queue at a time)in the queue set (figure 5 and column 5. lines 35-58) in the queue set.

However Sriram does not explicitly teach that the queue set generator is further configured for generating a notification when a queue set is ready for scheduling; and that is communicatively coupled to the scheduler.

In the same field of endeavor Yin et al disclose a queue generator, communicatively coupled to a scheduler, that is configured for generating a notification when a queue is ready for scheduling (figure 2 and column 4 lines 40-51)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to generate and communicate a notification when a queue is ready for scheduling as disclosed by Yin et al in the system of Sriram in order to efficiently service the queues.

Consider claim 12 and as applied to claim 8 above, Sriram as modified by Yin teaches shaping traffic flow of the queue set at a rate for transmission of data from the queue (figure 5 and column 5 lines 51-60).

Consider claim 13 and as applied to claim 8 above, Sriram as modified by Yin discloses a queuing operation comprising at least one selected from the group consisting of: enqueue operation and dequeue operation (column 2 lines 5-9).

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Parthasarathy (United States Patent No.: US 6,826,182 B1).

Consider claim 14 and as applied to claim 8 above, Sriram discloses the claimed invention but does not specifically disclose determining that each queue set of a plurality of consecutive queue sets is the same; using one representative queue set to represent the plurality of consecutive queue sets, a replication count of the queue set being equivalent to the number of queue sets in the plurality of consecutive queue sets; and performing a queuing operation on the representative queue set, such that the queuing operation is performed on each of the plurality of consecutive queue sets.

In the same field of endeavor Parthasarathy discloses determining that each queue of a plurality of consecutive queues is the same (identical message queues) (column 5 line 6-12); using one representative queue to represent the plurality of consecutive queues (in figure 3b composite queue 35 in figure 3b), a replication count of the queue being equivalent to the number of queues in the plurality of consecutive queues (multiple read cursor RC1-n) (figure 3b and column 5 lines 14-16); and performing a queuing operation on the representative queue, such that the queuing operation is performed on each of the plurality of consecutive queues (column 5 lines 45-49).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Parthasarathy for replicating queues in the queue sets of Sriram in order to reduce

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Yin ((United States Patent No.: 5,926,458) as applied to claim 8 above, and further in view of Weng et al (United States Patent Application Publication No.: US 2001/0007565 A1).

Consider claim 9 and as applied to claim 8 above the combination of Sriram and Yin teach the claimed invention but fails to specifically teach allocating the plurality of

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consecutive packets to the queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue.

In the same field of endeavor Weng et al teach allocating the plurality of consecutive packets to the queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue (paragraph [0035]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to allocate the plurality of consecutive packets to the queue set based on a target queue set size, the target size being approximate to a largest supported packet length of the queue as taught by Weng et al in the system of Sriram as modified by Yin in order to efficiently handle data packets.

15. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Yin ((United States Patent No.: 5,926,458) as applied to claim 8 above, and further in view of Ying et al (United States Patent No.: US 6,810,012 B1) and of Giroux et al (United States Patent Application Publication No.: US 2002/0044529 A1).

Consider claim 10 and as applied to claim 8 above the combination of Sriram and Yin disclose the claimed invention but may not explicitly disclose determining a queue service interval for performing queuing operations on queue sets based upon a desired data rate and a target queue set size; wherein performing the queuing operation on the

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queue set related to the queue further comprises: performing a first queuing operation on a first queue set related to the queue, delaying a period of time equivalent to the queue service interval, and performing a subsequent queuing operation on a second queue set related to the queue.

In the same field of endeavor Yin et al clearly show and disclose determining a queue service interval for performing queuing operations on queue sets based upon a desired data rate (column 3 lines 13-15); wherein performing the queuing operation on the queue set related to the queue further comprises: performing a first queuing operation on a first queue set related to the queue, delaying a period of time equivalent to the queue service interval, and performing a subsequent queuing operation on a second queue set related to the queue (column 3 lines 44-46).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Yin et al in the system of Sriram as modified by Yin in order to ideally service each queue set.

Nonetheless the combination of Sriram, Yin and Yin et al fail to teach that the determination of the queue service interval is based upon a target queue set size.

In the same field of endeavor Giroux et al disclose determining the queue service interval based upon a target queue size (paragraph [0033]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the queue service interval based upon a target queue size as disclosed by Giroux et al in the system of Sriram as modified by Yin and Yin et al in order to ensure bandwidth allocation.

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sriram (United States Patent No.: 5,463,620) in view of Yin ((United States Patent No.: 5,926,458) as applied to claim 10 above, and further in view of Ying et al (United States Patent No.: US 6,810,012 B1), Giroux et al (United States Patent Application Publication No.: US 2002/0044529 A1) and of Aweya et al (United States Patent No.: US 7,047,312 B1) and Reeser et al (United States Patent No.: US 6,789,050 B1)

Consider claim 11 and as applied to claim 10 above, the combination of Sriram, Yin, Yin et al and Giroux et al disclose adjusting the queue service interval based upon a difference between the change in queue set size and the target queue set size, (Giroux et al paragraph [0033]-[0035]) but it does not specifically disclose determining an average queue set size for the queue set over a period of time; and adjusting the queue service interval based upon a difference between the average queue set size and the target queue set size.

In the same field of endeavor Aweya et al disclose detecting congestion by taking the difference (comparing) the average queue size with the target queue size (pre-determined threshold).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to take the difference between the average queue set size and the target queue set size as disclosed by Aweya et al in the system of Sriram as

modified by Yin, Yin et al and further modified by Giroux et al in order to determine congestion.

In the same field of endeavor Reeser et al disclose adjusting the queue service interval (service time) based upon congestion (column 3 lines 1-9).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to adjust the queue service interval based on congestion as disclosed by Reeser et al in the system of Sriram as modified by Yin, and further modified by Yin et al, Giroux et al and Aweya et al in order to account for network performance.

Response to Arguments

17. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new grounds of rejection.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
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401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Viana Di Prisco whose telephone number is (571) 270-1781. The examiner can normally be reached on Monday through Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 14, 2007
German Viana Di Prisco



KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER